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How to Develop Film

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How to Develop A Roll of Black-and-White Film

First, you will need to load the film onto a reel and place it in your tank. It must be done blind, in complete darkness. Practice loading a few times with a practice film in daylight, so you can see and get the feel for it. THIS IS VERY IMPORTANT! Once you feel competent in daylight, close your eyes and try it.

Getting Ready: Lay out your tools in front of you: film cassette, can opener, scissors, film reel, tank and tank cover. Memorize their positions. Turn off the light. You're ready.

Step 1: In total darkness, remove the film from the cassette. Pull the flat end (as opposed to the end with the tip of the spool sticking out) off the 35mm canister with a can or film opener. Remove the film from the canister, then remove the spool from the end of the film from by cutting it off with the scissors, as close as possible to the spool; also cut the "Leader" – the part you used to load the film – so that the film has as straight an end as possible.

Step 2: Load the film onto a plastic film reel. You simply slide one end of the film into the slot on the outer edge of the reel and "walk" the film in until it is loaded completely.

Step 3: Place the loaded reel(s) in the film tank: put both reels on the central stem (the black plastic tube) with the flange at the BOTTOM. (Even if you are only developing one roll, place an empty reel on top.) Put the cover on as directed. The film is now in a light tight container. You can turn on the light.

Now you're ready to process your film. Lay out the chemicals in front of you: a film developer, a stop bath, and a fixer.

Step 4: Find the **DEVELOPMENT TIME** for your film. (The times are posted for every film in the development room and outside.) ***Each brand and speed of film has a different development time.*** All the other times are the same for the subsequent steps, except for this first step, the development time.
Make sure the temperature of the developer is carefully controlled. The temperature of the developer directly affects development time.

It's like cooking – if the developer is warmer, the time is shorter, and the time is longer if the developer is cooler.
The developer (D-76) is **NOT** ready-to-use; you must **dilute it by half with water**. (1:1)
The reason for this is it gives you a chance to change the temperature of your developer solution by adding warmer or colder water to the D-76 stock solution.
You will find on the bottom of your tank, a measurement telling you how much total solution you need to fill your tank.
Fill a beaker with HALF this amount, measure the temperature with a thermometer, and add the other half of water, at a temperature that will achieve 68 degrees for the total amount of developer.
All the other steps, you will use the chemistry as-is, you don't have to dilute, and the temperatures aren't so critical.
NOTE: Most manufacturers suggest 68-70 degrees as the ideal temperature for processing, although you can develop at slightly higher and lower temperatures as long as you make adjustments. A range of 65-75 degrees is acceptable as long as you properly adjust your development time.

Step 5: Pour developer into the open part of the sealed film tank, known as the pour spout, and cover it. Do not open the tank itself! To keep fresh chemical on the film surface, agitation is essential throughout the process. To agitate, briefly turn the tank upside down, ("Inversion agitation") or use your "swizzle stick" for 10 seconds once a minute. After each agitation, tap your tank several times *gently* against your work surface to remove any air bubbles that might form on the film during agitation. (If you don't, the bubbles will leave dark under-developed areas on your negatives).
Develop film for the time recommended. When done, take the lid off the tank's pour spout and pour it out into the sink and down the drain.

Step 6: Pour running water into the pour spout for one minute to stop development.

Step 7: Now it is time to fix the image so you can view it in normal light. Fixing takes 5-7 minutes, depending on if you used a new or used fixer. At the end of the fixing time, you could actually inspect the

negatives although you'll probably want to wait until everything is finished.
IF YOU ARE USING FRESH FIXER, RETURN IT TO THE "USED FIXER" CONTAINERS. IF YOU GOT FIXER FROM THE "USED" CONTAINERS, PUT IT IN THE SPECIAL CONTAINERS FOR EXHAUSTED FIXER. This is the only chemistry we don't pour down the drain.

Step 8: Since you no longer have to worry about exposing the film to light, remove the tank cover completely and let the film sit in cold running water for five minutes. You can pull out a bit of film to inspect it and make sure your negatives are there. There is a film washer in the developing room that fits the reels, but it's fine to do the washing in your tank by running water over the negatives.

Step 10: Photo-Flo, helps the film to dry without water spots. It should already be mixed, if it is not, just a few drops in your tank, filled with water, for 30 seconds. This is the final step, there is no wash after the photo-flo.

Step 11: Carefully pull the film out of the reels. Watch that they don't drag on the floor! Use film clips to hang the film to dry in the film dryer. You can weight your film so it doesn't curl while drying by using your old canister as demonstrated.

Step 12: In about 30 min, the film will be dry. Use scissors to cut the film into strips the right size for your negative holders (usually 5 or 6 negatives). Try not to touch the surface of your negatives - handle them by their edges. *Be careful to cut the film in the space between the images.* Don't worry if the whole roll won't fit on one sheet, just start another sheet with the extra negatives and soon it will be filled up.